DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

Mr. Daniel J. Manelli.
Consultant for Lobob Laboratories, Inc.
Farkas & Manelli, P.L.L.C.
2000 M Street N.W.
Suite 700
Washington, DC 20036-3307

APR 28 1998

Re: P940026
Lobob C/D/S Cleaning, Disinfecting and Storage Solution
Filed: May 23, 1995
Amended: June 9, July 17, and August 2, 1995; and March 26, May 7, November 5 and 15, 1996; and April 21, 1998

Dear Mr. Manelli:

The Center for Devices and Radiological Health (CDRH) of the Food and Drug Administration (FDA) has completed its review of the premarket approval application (PMA) that you submitted on behalf of Lobob Laboratories, Inc., for the Lobob C/D/S Cleaning, Disinfecting and Storage Solution. This device is indicated for use in the cleaning, chemical disinfection and storage of fuoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses. Your client may begin commercial distribution of the device upon receipt of this letter.

Expiration dating for this device has been established and approved at 18 months for the 1 fl. oz. (30 ml) and 4 fl. oz. (118 ml) size bottles. This is to advise you that the protocol you used to establish this expiration dating is considered an approved protocol for the purpose of extending the expiration dating as provided by 21 CFR 814.39(a)(8).

CDRH will notify the public of its decision to approve the PMA by making available a summary of the safety and effectiveness data upon which the approval is based. The information can be found on the FDA CDRH Internet HomePage located at http://www.fda.gov/cdrh/pmapage.html. Written requests for this information can also be made to the Dockets Management Branch (HFA-305), Food and Drug Administration, 12420 Parklawn Dr., Rm. 1-23, Rockville, MD 20857. The written request should include the PMA number or docket number. Within 30 days from the date that this information is placed on the Internet, any interested person may seek review of this decision by requesting an opportunity for administrative review, either through a hearing or review by an independent advisory committee, under section 515(g) of the Federal Food, Drug, and Cosmetic Act (the act).

Effective July 7, 1997, CDRH reclassified contact lens care products from class III (premarket approval) to class II (special controls). Although the referenced device is subject to the reclassification order, CDRH continued to process this application as a PMA to facilitate approval since the only outstanding issue at the time of reclassification was compliance with the Good Manufacturing Practice Regulation. This issue was subsequently resolved on April 28, 1998.

Future modifications of the device are subject to the premarket notification (510(k)) provisions of the act. Guidance for preparing a 510(k) submission is found in the "Guidance for Industry, Premarket Notification (510(k)) Guidance Document for Contact Lens Care Products" dated May 1, 1997, which can be found on the FDA CDRH Internet HomePage located at http://www.fda.gov/cdrh. You may obtain a hard copy of the guidance by faxing your request to the Division of Small Manufacturers Assistance [fax (301) 443-8818].

All correspondence regarding 510(k) submission should be submitted to the address below:

510(k) Document Mail Center (HFZ-401)
Center for Devices and Radiological Health
Food and Drug Administration
9200 Corporate Blvd.
Rockville, Maryland 20850

If you have any questions concerning this approval order, please contact Ms. Muriel Gelles or James F. Saviola, O.D., at (301) 594-1744, or Kathy Poneleit at (301) 594-2186.

Sincerely yours,

Susan Alpert, Ph.D., M.D.
Director
Office of Device Evaluation
Center for Devices and
Radiological Health

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Summary of Safety and Effectiveness Data

I. General Information

A. Device Generic Name: cleaning, storage, and chemical disinfection solution for use with fluoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses

B. Device Trade Name: Lobob C/D/S Cleaning, Disinfecting and Storage Solution

C. Applicant's Name and Address:
Mr. Daniel J. Manelli
Consultant
Lobob Laboratories, Inc.
1440 Atteberry Lane
San Jose, CA 95131

D. Premarket Approval Application (PMA) Number: P940026

E. Date of Notice of Approval to Applicant: APR 28 1999

II. Indications

Lobob C/D/S Cleaning, Disinfecting and Storage Solution is indicated for use in the cleaning, chemical disinfection and storage of fluoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses.

III. Device Description

Lobob C/D/S Cleaning, Disinfecting and Storage Solution is a sterile solution containing the lauryl sulfate salt of imidazoline and octylphenoxypolyethoxyethanol and is preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%.

IV. Center for Devices and Radiological Health (CDRH) Decision

The application includes by reference the data in P870023 and for the de-STAT 3^{R} Cleaning, Disinfecting and Storage Solution and all related supplements that led to the approval of the de STAT 3^{R} Cleaning, Disinfecting and Storage Solution, submitted by Sherman Laboratories, Inc. and approved by FDA on March 31, 1989. Sherman Laboratories, Inc. has authorized Lobob Laboratories, Inc. to incorporate by reference the information contained in its approved PMA to manufacture the device.

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CDRH approval of Lobob Laboratories, Inc.'s PMA is based on (1) the safety and effectiveness data contained in PMA P870023 and related supplements and (2) the results of the FDA inspections of the manufacturing facilities. A summary of safety and effectiveness data for the de-STAT 3^{R} Cleaning, Disinfecting and Storage Solution appears in Attachment A.

Effective July 7, 1997, CDRH reclassified contact lens care products from class III (premarket approval) to class II (special controls). Although the device is subject to the reclassification order, CDRH continued to process this application as a PMA to facilitate approval since the only outstanding issue at the time of reclassification was compliance with the Good Manufacturing Practice Regulation. This issue was subsequently resolved on APR 2 8 1998.

In accordance with the provisions of section 515(c)(2) of the act as amended by the Safe Medical Devices Act of 1990, this PMA was not referred to the Ophthalmic Devices Panel for review and recommendation because the information in the PMA substantially duplicates information previously reviewed by this panel. CDRH approved this application and final labeling on APR 2 8 1998.

The device shelf-life has been established and approved as 18 months.

V. Potential Adverse Effects of the Device on Health

Potential adverse effects on health resulting from the use of this device are listed in the package insert under "ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO)"

VI. Conditions of Approval

CDRH has determined that no special restrictions or conditions pertain other than those described in the "Conditions of Approval" enclosed with the approval order. A copy of the approved draft labeling is attached

Attachments A

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Summary of Safety and Effectiveness Data

I. General Information

A. Device Generic Name: cleaning, storage and chemical disinfection solution for use with silicone acrylate rigid gas permeable contact lenses

B. Device Trade Name: de-STAT 3®

C. Applicant's Name and Address: Sherman Laboratories, Inc.
P.O. Box 368
Abita Springs, Louisiana 70420

D. Premarket Approval Application (PMA) Number: P870023

E. Date of Panel Recommendation: June 21, 1988

F. Date of Notice of Approval to Applicant: MAR 31 1989

II. Indications

de-STAT 3® is indicated for use in the cleaning, chemical disinfection and storage of silicone acrylate rigid gas permeable contact lenses.

III. Device Description

de-STAT 3® is a sterile solution containing the lauryl sulfate salt of imidazoline and octylphenoxypolyethoxyethanol and is preserved with benzyl alcohol 0.1% and trisodium edetate (EDTA) 0.5%.

IV. Alternative Practices or Procedures

Alternative practices or procedures available to the patient are the use of other commercially available solutions for the same indications.

V. Summary of Studies

A. Preclinical:

1. Toxicology: The applicant conducted the battery of tests outlined in "Toxicology Guidelines" section of the Class III Contact Lens Product Guideline, an FDA guideline dated May 1983. In addition to the guideline testing, the applicant provided the following toxicology information for the preservative, benzyl alcohol:

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a. guinea pig maximization test was conducted to assess the sensitization potential of benzyl alcohol

b. Cochett-Bonett Test was conducted on humans to determine the possible anaesthetic effect of benzyl alcohol to the cornea

c. corneal penetration test was conducted in rabbits to determine the adsorption and distribution in ocular tissue and to determine if benzyl alcohol is metabolized during corneal penetration

d. corneal epithelial wound healing study was conducted in rabbits to determine if benzyl alcohol had any effect on the rate of epithelial wound healing

e. Product Safety Information Sheet containing the following information:

   1. the acute oral LD50 is 1230 mg/kg to 3100 mg/kg in rats

   2. the acute oral LD50 is 1580 mg/kg in mice

   3. the acute oral LD50 is 1040 mg/kg in rabbits

   4. the acute dermal LD50 is 2000 mg/kg in rabbits

   5. the acute inhalation LC50 is 1000 ppm in rats after an 8-hour inhalation exposure

   6. benzyl alcohol meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1900.1200)

Conclusion:

The results from the guideline testing for the device along with the additional testing described above provide reasonable assurance that the solution and its preservative, benzyl alcohol, at the concentration proposed for use (0.1%), raise no acute toxicological concerns and support the safety of the device for its intended use as stated in the approved labeling. The labeling for the device contraindicates use of the device by persons allergic to any ingredients in the solution. In addition, the labeling of the device warns that the solution is not to be used directly in the eye.

2. Microbiology: The applicant conducted the battery of tests outlined in "Microbiology Guidelines" section of the Class III Contact Lens Product Guideline, an FDA guideline dated May 1983.

Conclusion:

The results from these tests provide reasonable assurance that the solution is effective in the disinfecting of silicone acrylate rigid gas permeable contact lenses; the preservative system which includes benzyl alcohol in the proposed concentration of 0.1% is an effective preservative system for this device; and the solution remains sterile as packaged for at least 36 months.

3. Lens/Solution Compatibility: The applicant conducted tests to establish that the solution does not adversely affect lens color, base curve, diameter, center thickness, and power. In these tests, 5 Polycon, 5 Polycon II, 1 Boston IV, 4 Paraperm O_2 Plus, and 5 Optacryl K lenses were cycled through 30 cleaning and disinfection cycles. The lenses were then examined to determine the effect of the test solution on the lenses. There were no changes in lens color and parameters.

Conclusion:

The results from these tests provide reasonable assurance that the solution is compatible with clear and tinted silicone acrylate rigid gas permeable contact lenses.

4. Solution Stability: The applicant conducted tests to establish the stability of the solution and the appropriate expiration dating. The test solution was packaged into the finished product containers stored at various temperatures, and examined for conformance to original specifications.

Conclusion:

The results from these tests provide reasonable assurance that the solution remains stable as packaged for at least 36 months in its 4 fl. oz. (118 mL) container.

5. Preservative Uptake/Release: A preservative uptake/release study was conducted by the applicant for benzyl alcohol. Two lenses each of Polycon, Polycon II, Boston II, Paraperm O_2 Plus, and Optacryl K silicone acrylate rigid gas permeable contact lenses were soaked in the solution, and the uptake and release of benzyl alcohol was measured in accordance with the FDA Guidelines dated May 1983.

Conclusion:

The results from these tests demonstrate minimal risk to patients from uptake and release of the preservative by silicone acrylate rigid gas permeable contact lenses and supports the safety of the device for its intended use when accompanied by

appropriate labeling. The labeling for the device contraindicates use of the device by persons allergic to any ingredients in the solution. In addition, the labeling for the device warns that the solution is not to be used directly in the eye.

6. Cleaning Effectiveness: The applicant conducted an in vitro cleaning effectiveness test using silicone acrylate rigid gas permeable (RGP) contact lenses, as outlined in the July 1985 Class III Contact Lens Product Guidelines. In this test 5 Polycon lenses, 7 Polycon II lenses, 1 Boston IV lens, 2 Boston II lenses, 6 Paraperm O_2 Plus lenses and 5 Optacryl K lenses underwent 30 cycles of cleaning, disinfection and storage using the subject device. This test was to assess the ability of the device to clean RGP contact lenses. The lens diameter, power and clarity were monitored before and after 30 cycles of disinfection which included use of the study solution.

   Additionally, the applicant conducted the in vitro cleaning effectiveness test as outlined in the July 1985 Class III Contact Lens Product Guidelines using the study solution in a test group and a commercially available sterile unpreserved saline solution in the control group. In this test 5 lenses each of Paraperm O_2 Plus, Polycon II, and Optacryl K were tested in each of the 2 groups. The lenses were monitored for deposits, surface condition and wetting properties at the beginning and end of the study. Lenses were soaked in artificial tears for 15 minutes at room temperature. The lenses were then placed under a heat lamp for 30 minutes at 45^0 C to 50^0 C to dry. The lenses in the test group were cleaned with the study solution, and lenses in the control group were cleaned with sterile unpreserved saline solution.

   Of the 15 lenses in the test group, 10 lenses had no deposits and 5 lenses had slight deposits. In the control group 2 lenses had slight deposits, 6 lenses had moderate deposits and 7 lenses had heavy deposits. For the same lenses in the test group, the extent of deposits on the surface area of the lenses was no deposits for 9 lenses, 26% to 50% for 5 lenses and 51% to 75% for 1 lens. In the control group the extent of depsoits on the surface of the lens was 26% to 50 % for 1 lens, 51% to 75% for 11 lenses and 76% to 100% for 3 lenses.

   Conclusion:

   The results from these tests show the study solution to be more effective than saline solution in removing deposits and provide supporting evidence regarding the effectiveness of the solution to clean silicone acrylate rigid gas permeable contact lenses.

7. Additional Information: The applicant offered additional information to provide support of the effectiveness of the preservative, benzyl alcohol. This information includes references to USP XXI (page 1195) which lists benzyl alcohol as one of the commonly used antimicrobial agents and to United States Dispensatory, 26th Edition, (page 198) which lists benzyl alcohol as having bacteriostatic effects.

   Conclusion:

   The information cited above provides additional supportative evidence of the effectiveness of benzyl alcohol as an antimicrobial agent.

B. Clinical:

The purpose of the clinical study was to evaluate the safety and effectiveness of the device in accordance with the proposed labeling.

The clinical study was conducted in accordance with the "Clinical Guidelines" section of the Class III Contact lens Product Guidelines, an FDA guideline dated May 1983.

Patient Selection Criteria

The patients enrolled into this clinical study were to meet the following criteria:

1. be willing to adhere to the regimen of hygiene prescribed;

2. have normal eyes as defined in the protocol and use no ocular medications; and

3. have need of an optical correction.

Study Population

A total of 228 patients (451 eyes) was enrolled by 9 investigators into this clinical study. There were 148 females and 80 males ranging in age from 7 years to 73 years. Of the 228 patients (451 eyes) enrolled into the study, 213 patients (423 eyes) completed the 6-month study, and 15 patients (28 eyes) were discontinued from the study as discussed on page 9 of this summary. All patients in the study used de-STAT 3® and STAY-WET 3® (a lubricating and wetting solution which is the subject of another PMA). Lenses worn during the study were:

Lenses	No. of Eyes
Optacryl and Optacryl K	126
Boston II	124
Paraperm	57
Polycon and Polycon II	50
Silcon	44
Optacryl 60	32
Ultraflex	4
Flex	4
Airlens	2
B.P. Flex	2
Bioflex	2
GP II Hydrocurve	2
Ellipseecon	2

Study Period

The clinical study began on March 8, 1984, and ended on April 16, 1985. The study period was 6 months.

Findings

1. Safety:

Adverse Reactions

In evaluating this device, an adverse reaction was considered to be a serious, vision-threatening problem that was unanticipated, but which might have been attributed to the use of the study device. There were no adverse reactions reported during the course of this clinical study.

Slit Lamp Findings

A positive slit lamp finding is considered to be a routinely occurring complication that would be expected with or without the presence of contact lenses and with or without the use of the study device. The degree of severity can range from very slight to serious. At the least severe, the findings present no medical concerns and are noticeable only by microscopic slit lamp examination. In a severe state, the findings require medical treatment.

Slit lamp examinations were performed initially and periodically throughout the study. The applicant used the classification of slit lamp findings as outlined in attachment A. Positive slit lamp findings for the 423 eyes completing the study were as follows:

Slit Lamp Finding	Initial Visit 423 eyes	Follow-up Visits 2,526 eyes	Final Visit 423 eyes
Edema			
Grade 1	0	1	0
Injection			
Grade 1	0	7	0
Staining			
Grade 1	2	49	9
Grade 2	0	4	0
Grade 3	2	2	0
Grade 4	0	5	0
Grade 5	0	1	1
Grade 8	0	1	1
Iritis	0	0	0
Vascular-ization			
Grade 1	0	4	0
Other	0	0	0

One patient had recurrent grade 3 staining in both eyes at the initial and 2-week visits. The condition resolved as the study progressed.

There were 5 reports of grade 4 staining (diffuse superficial punctate staining), 2 reports of grade 5 staining (epithelial dimpling associated with gas bubbles under the lens), and 2 reports of grade 8 staining (foreign body track staining) during the study. In each case the findings resolved with no sequelae, and all patients successfully completed the study.

Conclusion:

There were no positive slit lamp findings requiring medical treatment during this study. The positive slit lamp findings in this clinical study are within expected limits for contact lens wear and do not raise any significant concerns regarding the safety of the device when used as directed in the approved labeling.

Patient Symptoms, Problems and Complaints

Patient symptoms, problems and complaints were reported by the investigators during the clinical study. Of the 3,872 eye examinations conducted, a total of 2,971 eye examination reports were provided for patient symptoms, problems and complaints during the course of the 6-month study. Patient symptoms, problems and complaints (multiple reports) were reported as follows:

	No. Reports All Visits
Awareness of lens	13
Excessive blink rate	8
Variable vision	8
Lenses need cleaning	8
Pain, burning, itching	5
Excessive movement	5
Spectacle blur	4
Handling problems	4
Reading problems	4
Flare	3
Excessive tearing	3
Distance vision blurred	2
Eyes clouded up	2
Dry eyes	2
Scratching	2
Tired eyes	2
Eyes feel swollen	2
Discomfort	1
Excessive blink rate and movement	1

Conclusion:

The patient symptoms, problems and complaints reported during this study were within expected limits for contact lens wear and do not raise any significant concerns about the safety or effectiveness of the device.

2. Effectiveness:

Visual Acuity

For the 423 eyes completing the study, visual acuity with lenses was reported as 20/30 or better for 407 of 415 eyes at the initial visit and 419 of the 421 eyes at the final visit. Visual acuity was not reported for 8 eyes at the initial visit and 2 eyes at the final visit. Visual acuity data was provided for the initial visit and was compared to visual acuity at the last visit. Results for the completer eyes were:

Visual Acuity	Initial Visit (423 eyes)	Final Visit (423 eyes)
20/20 or better	372	405
20/25	26	14
20/30	9	0
20/40	6	0
20/50	0	0
20/60	1	1
20/150	0	1
20/200	1	0
Not reported	8	2

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Conclusion:

There were no decreases in visual acuity greater than 1 Snellen line. A fluctuation in visual acuity of 1 Snellen line is not unusual for a contact lens and contact lens solution study due to measuring techniques and normal fluctuation and is not significant in terms of visual acuity. The visual acuity results in this clinical study do not raise any significant concerns regarding the safety and effectiveness of the device and provide reasonable assurance that the device does not adversely affect the lenses.

Lens Wearing Time

The average daily lens wearing time ranged from 14 hours at the 2-week visit to 15.3 hours at the final visit.

Conclusion:

The lens wearing times reported for this study provide reasonable assurance that most patients were wearing their lenses for at least 14 hours each day without negative effects from the use of the device.

Discontinued Patients

There were 15 patients (28 eyes) discontinued from this study. Reasons for discontinuation were:

Reason	No. Eyes
Lost-to-follow-up	20
Moved	4
Discomfort	2
Failure to comply with instructions	2

There were no eyes discontinued for reason of pathology. All eyes discontinued from the study were discontinued by the 8-week visit.

Conclusion:

The reasons for and incidence of discontinuance in this clinical study are within expected limits for contact lens wear and do not raise any significant concerns regarding the safety and effectiveness of the device.

Lens Replacements

There were 34 lenses replaced during this clinical study. Reasons reported for replacements were as follows:

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Reason	No. of Lenses
Acuity	11
Back-up lenses	10
Lost	4
Spectacle blur	2
Physiology and fitting	2
Not specified	2
Comfort	1
Fitting	1
Warpage	1

"Physiology and fitting" was reported as grade 1 edema and lens parameter change.

Conclusion:

The reasons for lens replacements in this study are within expected limits for contact lens wear. These reasons and numbers of replacements do not raise any significant concerns about the safety and effectiveness of the device.

Cleaning Effectiveness

To further assess the effectiveness of the solution in a clinical situation, the applicant conducted an additional clinical study using the study solution as supportive evidence of cleaning effectiveness. This study consisted of 142 eyes wearing silicone acrylate rigid gas permeable contact lenses. At the final visit (3-month visit) these 142 lenses were evaluated for surface characteristics by the investigators using the Modified Rudko Classification (Attachment B). The following results were provided:

Type	Visibility	Lens Appearance
I	101	8 - Abrasions
II	41	33 - Film
IV	0	0 - Spots

There were 101 lenses with no deposits and 41 lenses with slight deposits on the surface. Of the 41 lenses with slight deposits, there were 29 lenses having deposits involving less than 10% of the lens surface, 4 lenses involving 15% of the lens surface, 6 lenses involving 20% of the lens surface, and 2 lenses involving 25% of the lens surface area.

Discoloration was reported for 6 lenses as very slight, and the causes or reasons were not reported by the investigators.

Conclusion:

The Center for Devices and Radiological Health (CDRH) has determined that some surface deposits could be expected to remain on the lenses despite use of the device. The clinical data presented provides reasonable assurance that the device is effective in the routine cleaning of surface deposits from silicone acrylate rigid gas permeable contact lenses and is further supported by non-clinical in-vitro studies as reported earlier in this summary. Enzymatic cleaners were not used in this clinical study. However, the labeling for the device states that use of an enzyme cleaner may be needed in conjunction with the device as recommended by the eye care practitioner.

VI. Potential Adverse Effects of the Device on Health

Potential adverse effects on health resulting from the use of this device are indicated in the package insert under "ADVERSE REACTIONS" (Attachment C).

VII. Conclusions Drawn From the Studies

The data contained in the PMA provide reasonable assurance that the device is safe and effective for its intended use.

VIII. Panel Recommendation

On June 21, 1988, the Ophthalmic Devices Panel unanimously recommended approval of the PMA subject to the conditions that the applicant provide data and results from in-vitro cleaning effectiveness studies using the subject device and a control solution such as saline; that all administrative requirements be met; and that the applicant be in compliance with the device Good Manufacturing Practice (GMP) regulations.

IX. CDRH Decision

After the applicant met the conditions recommended by the Panel, CDRH concluded that the data contained in the PMA provides reasonable assurance that the device is safe and effective for cleaning, disinfecting and storing silicone acrylate rigid gas permeable contact lenses. Based upon this conclusion, upon information in the PMA and upon review of the labeling, CDRH concurred with the Panel recommendation and approved the application and draft final labeling on MAR 31 1989 .

The device shelf-life has been established and approved as 36 months. In an on-site inspection commencing on October 24, 1988, the manufacturing facilities were found to be in compliance with the device GMP regulations.

X. Conditions of Approval

CDRH has determined that the only conditions pertaining to this device are those described in the "Conditions of Approval" enclosed with the approval order. A copy of the package insert is included (Attachment C). All approved labeling is available to interested persons for inspection at:

Food and Drug Administration
Center for Devices and
Radiological Health
PMA Document Mail Center (HFZ-401)
8757 Georgia Avenue
Silver Spring, Maryland 20910

Attachments A, B and C

ATTACHMENT H

The following classifications are to be used in reporting slit lamp examination findings:

EDEMA	GRADE CLASSIFICATION
A None	0
B Micro edema — intercellular accumulation of fluid which is limited to the epithelium and is seen only by the use of the slit lamp.	
1 Slight amounts in the epithelium, seen only by retro-illumination	
(a) Localized — over less than 50% of the cornea.	1
(b) Generalized — over more than 50% of the cornea.	2
2 Moderate amounts in the epithelium, seen by direct illumination:	
(a) Localized — over less than 50% of the cornea.	3
(b) Generalized — over more than 50% of the cornea.	4
C Gross edema — intracellular cystic accumulation of fluid, viewed by the naked eye using oblique flashlight illumination.	
1 Slight case, without any stromal involvement	
(a) Circumscribed — over less than 50% of the cornea.	5
(b) Generalized — over more than 50% of the cornea.	6
2 Severe case, with stromal involvement.	
(a) Circumscribed — over less than 50% of the cornea.	7
(b) Generalized — over more than 50% of the cornea.	8

VASCULARIZATION	
A None	0
B Extension of the limbal vessels more than 1.5 mm. inside limbus.	
1 Lower limbal area only	1
2 Upper limbal area only	2
3 Over the entire periphery.	3
4 Severe (to within 1 mm. of corneal apex) extensions of the limbal vessels into the clear epithelial tissue of the cornea	4
5 Other (explain)	5

IRITIS	
A No flare or cells	0
B Minimal flare (1+)	1
C Mild (2+)	2
D Moderate (3+)	3
E Severe (cells & flare: (4+)	4

STAINING	GRADE CLASSIFICATION
A. None	0
B. Minimal, variable, peripheral stippling.	1
C. Superficial punctate staining, restricted to a peripheral location and consistent in location from examination to examination.	2
D. Superficial punctate staining, centrally located.	3
E. Diffuse superficial punctate staining.	4
F. Epithelial dimpling associated with gas bubbles under the contact lens.	5
G. Branching furrows on the epithelial surface (observed best by use of the cobalt filter and fluoroscein).	6
H. Abrasions of the epithelium. Note if apparently caused by insertion or removal.	7
I. Foreign body track staining.	8
J. Deep corneal abrasions, ulcerations, permanent scars or other severe complications (explain).	9

INJECTION	
A. None	0
B. Mild congestion and dilation of the limbal vessels which was not characteristic of the pre-fitting condition (within 1.0 mm. of limbus).	1
C. Severe congestion and dilation of the normal limbal vessels.	2
D. Conjunctival hyperemia due to excess lacrimation and epiphora.	3

OTHER COMPLICATIONS	
A. None	0
B. Adnexal changes or changes in the lacrimal or appendages of the eye.	
1. Increase in mucous secretion in the tear fluid.	1
2. Follicular hypertrophy of the lymphoid follicles of the tarsal conjunctiva.	2
3. Traumatic iritis.	3
4. Descemet's membrane wrinkling.	4
5. Permanent damage caused by opacity or scarring of the cornea (may or may not impair vision).	5
C. Other (explain).	6

APPENDIX B

LENS CLEANLINESS GRADING SYSTEM

Extent of Surface Deposits (Percent of lens surface covered by deposits)	Classification Grade
None	0
To-25%	1
26-50%	2
51-75%	3
76-100%	4
Thickness of Surface Deposits	
None	I
Slight (very fine scattered, slight deposits with no apparent depth)	II
Moderate (deposits with a slight depth build-up or thickness, but still transparent)	III
Heavy (Opaque, crusted or heavily deposited formation of obvious thickness)	IV
Type of deposits	
C	Crystalline
G	Granular
F	Filmy

PACKAGE INSERT

Please read carefully and keep this package insert for future use in case you have a problem.

SHERMAN LABORATORIES, INC.

de-STAT 3® is a cleaning, disinfecting and storage solution for use with silicone acrylate rigid gas permeable (RGP) contact lenses.
NOTE: de-STAT 3® does not contain CHLORHEXIDINE or THIMEROSAL

DESCRIPTION:

de-STAT 3® is a sterile solution containing the lauryl sulfate salt of imidazoline, octylphenoxypolyethoxyethanol, and preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%

ACTIONS:

de-STAT 3® is a combination cleaning, storage and disinfection solution. de-STAT 3® loosens and removed accumulations of film, debris and surface deposits from the lenses; and destroys harmful microorganisms on the surface of silicone acrylate RGP lenses.

INDICATIONS:

de-STAT 3® is indicated for use in the cleaning, chemical disinfection and storage of silicone acrylate RGP contact lenses.

CONTRAINDICATIONS:

Please note carefully the ingredients as listed. If you are allergic to any ingredient in de-STAT 3®, do not use this product.

WARNINGS:

* To avoid contamination, do not touch dropper tip to any surface.
* Close cap tightly after each use.
* de-STAT 3® is NOT for use directly in the eye.
* de-STAT 3® must be completely rinsed from the lenses after disinfection and prior to wetting and insertion.
* Lens care procedures as recommended by your eye care practitioner muyst be followed. Faliure to follow these procedures may result in serious eye infections. If any unexplained eye discomfort, watering, vision change or redness of the eye occurs, immediately consult your eye care practitioner to identify the cause and begin necessary treatment.

PRECAUTIONS:

* Always wash and rinse hands before handling your lenses.
* Always use fresh de-STAT 3® in your lens case. NOTE: After inserting your lenses, always empty your lens storage case, rinse, and allow to air dry.
* Never reuse the solution in your lens storage case.
* Store at room temperature 15 - 30° C (59 - 86° F).
* Keep out of reach of children.
* Use before expiration date stamped on carton and bottle label.
* Never heat de-STAT 3® solution or your RGP lenses.
* de-STAT 3® is not for use with soft (hydrophilic) contact lenses.

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ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO):

The following problems may occur while wearing conatct lenses:

* Redness of the eye
* Eyes stinging, burning, or itching
* Excessive watering (tearing) of the eyes
* Unusual eye secretions
* Reduced sharpness of vision (visual acuity)
* Blurred vision
* Sensitivity to light (photophobia)
* Dry eyes

If you notice any of the above problems, IMMEDIATELY remove and examine your lenses. If the problem stops, and the lens appreas to be undamaged, throughly clean, rinse and disinfect the lenses and reinsert them. If the problem continues, or a lens appears to be damaged, IMMEDIATELY remove your lenses and consult your eye care practitioner. DO NOT reinsert a damaged lens.

If any of the above problems occur, a serious condition such as infection, corneal ulcer, neovascularization, or iritis may be present. Seek immediate professional identification and treatment of the problem to avoid serious eye damage. See your Instructions for Wearers Booklet for more information.

DIRECTIONS FOR USE:

General

* Always wash and rinse your hands before handling your contact lenses.
* Clean and rinse one lens, the right or left, first (always the same lens first to avoid mix-ups).

Clean

Upon removing the right lens from the eye, place the lens in the palm of the hand and cover the lens completely with 10 drops of de-STAT 3®. Rub the lens for 30 seconds with the index finger of the other hand creating a thick sudsy pool of solution.

NOTE: An enzyme cleaner may also be used if recommended by your eye care practitioner.

Rinse

Hold the lens under fresh running tap water. Be sure the drain of the sink is closed.

Disinfect/Store

Place the lens in the right chamber of your lens storage case and completely cover the lens with fresh de-STAT 3®.

Close the lid tightly and store the lens in the unopened storage case for at least six (6) hours.

Repeat the above procedure for the left lens.

HOW SUPPLIED:

de-STAT 3® is supplied sterile in 4 fl. oz. (118 mL) and 1 fl. oz. (30 mL) plastic bottles. Bottles and cartons are marked with lot numbers and expiration date.

EACH CONTAINER IS TAMPER-EVIDENT SEALED. IF THE SEAL AROUND THE BOTTLE CAP IS MISSING OR BROKEN, DO NOT USE THIS PRODUCT.

SHERMAN LABORATORIES, INC.
ABITA SPRINGS, LA 70420

Printed (Mo/Yr)

THE FOLLOWING IS A MOCK UP INSERT FOR THE LOBOB EQUIVALENT OF de-STAT 3, LOBOB C/D/S SOLUTION, THE TEXT IS IDENTICAL TO SHERMAN PHARMACEUTICALS, INC. EXCEPT FOR LOBOB TRADE NAME.

Please read carefully and keep this package insert for future use in case you have a problem.

LOBOB LABORATORIES, INC.

LOBOB C/D/S Solution is a cleaning, disinfecting and storage solution for use with fluoro/silicone acrylate and silicone acrylate rigid gas permeable (RGP) contact lenses. NOTE: LOBOB C/D/S Solution does not contain CHLORHEXIDINE or THIMEROSAL.

DESCRIPTION: LOBOB C/D/S Solution is a sterile solution containing the lauryl sulfate salt of imidazoline, octylphenoxypolyethoxyethanol, and preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%.

ACTIONS: LOBOB C/D/S Solution is a combination cleaning, storage and disinfection solution. LOBOB C/D/S Solution loosens and removes accumulations of film, debris and surface deposits from the lenses; and destroys harmful microorganisms on the surface of fluoro/silicone acrylate and silicone acrylate RGP contact lenses.

INDICATIONS: LOBOB C/D/S Solution is indicated for use in the cleaning, chemical disinfection and storage of fluoro/silicone acrylate and silicone acrylate RGP contact lenses.

CONTRAINDICATIONS: Please note carefully the ingredients as listed. If you are allergic to any ingredient in LOBOB C/D/S Solution, do not use this product.

WARNINGS:

- .To avoid contamination, do not touch dropper tip to any surface.
- .Close cap tightly after each use.
- .LOBOB C/D/S Solution is NOT for use directly in the eye.
- .LOBOB C/D/S Solution must be completely rinsed from the lenses after disinfection and prior to wetting and insertion.
- .Lens care procedures as recommended by your eye care practitioner must be followed. Failure to follow these procedures may result in serious eye infections. If any unexplained eye discomfort, watering, vision change or redness of the eye occurs, immediately remove your lenses and consult your eye care practitioner to identify the cause and begin necessary treatment.

PRECAUTIONS:

- .Always wash and rinse your hands before handling your lenses.
- .Always use fresh LOBOB C/D/S Solution in your lens case. NOTE: After inserting your lenses always empty your lens storage case, rinse and allow to air dry.
- .Never reuse the solution in your lens storage case.

.Store at room temperature 15-30°C (59-86°F).
.Keep out of reach of children.
.Use before expiration date stamped on carton and bottle label.
.Never heat LOBOB C/D/S Solution or your RGP lenses.
.LOBOB C/D/S Solution is not for use with soft (hydrophilic) contact lenses.

ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO): The following problems may occur while wearing contact lenses.

.Redness of the eye
.Eyes stinging, burning or itching
.Excessive watering (tearing) of the eyes
.Unusual eye secretions
.Reduced sharpness of vision (visual acuity)
.Blurred vision
.Sensitivity to light (photophobia)
.Dry eyes

If you notice any of the above problems, IMMEDIATELY remove and examine your lenses. If the problem stops, and the lenses appear to be undamaged, thoroughly clean, rinse and disinfect the lenses and reinsert them. If the problem continues, or a lens appears to be damaged, IMMEDIATELY remove you lenses and consult your eye care practitioner. DO NOT reinsert a damaged lens. If any of the above problems occur, a serious condition such as infection, corneal ulcer, neovascularization, or iritis may be present. Seek immediate professional identification and treatment of the problem to avoid serious eye damage. See your Instructions for Wearers Booklet for more information.

DIRECTIONS FOR USE:

General

.Always wash and rinse your hands before handling your contact lenses.
.Clean and rinse one lens, the right or left, first (always the same lens first to avoid mix-ups).

Clean

Upon removing the right lens from the eye, place the lens in the palm of the hand and cover the lens completely with 10 drops of LOBOB C/D/S Solution. Rub the lens for 30 seconds with the index finger of the other hand creating a thick sudsy pool of solution.

NOTE: An enzyme cleaner may also be used if recommended by your eye care practitioner.

Rinse

Hold the lens under fresh running tap water. Be sure the drain of the sink is closed.

Disinfect/Store

Place the lens in the right chamber of your lens storage case and completely cover the lens with fresh LOBOB C/D/S Solution. Close the lid tightly and store the lens in the unopened storage case for at least six (6) hours. Repeat the above procedure for the left lens.

HOW SUPPLIED:

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
9200 Corporate Boulevard
Rockville MD 20850

Mr. Daniel J. Manelli.
Consultant for Lobob Laboratories, Inc.
Farkas & Manelli, P.L.L.C.
2000 M Street N.W.
Suite 700
Washington, DC 20036-3307

APR 28 1998

Re: P940026
Lobob C/D/S Cleaning, Disinfecting and Storage Solution
Filed: May 23, 1995
Amended: June 9, July 17, and August 2, 1995; and March 26, May 7, November 5 and 15, 1996; and April 21, 1998

Dear Mr. Manelli:

The Center for Devices and Radiological Health (CDRH) of the Food and Drug Administration (FDA) has completed its review of the premarket approval application (PMA) that you submitted on behalf of Lobob Laboratories, Inc., for the Lobob C/D/S Cleaning, Disinfecting and Storage Solution. This device is indicated for use in the cleaning, chemical disinfection and storage of fuoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses. Your client may begin commercial distribution of the device upon receipt of this letter.

Expiration dating for this device has been established and approved at 18 months for the 1 fl. oz. (30 ml) and 4 fl. oz. (118 ml) size bottles. This is to advise you that the protocol you used to establish this expiration dating is considered an approved protocol for the purpose of extending the expiration dating as provided by 21 CFR 814.39(a)(8).

CDRH will notify the public of its decision to approve the PMA by making available a summary of the safety and effectiveness data upon which the approval is based. The information can be found on the FDA CDRH Internet HomePage located at http://www.fda.gov/cdrh/pmapage.html. Written requests for this information can also be made to the Dockets Management Branch (HFA-305), Food and Drug Administration, 12420 Parklawn Dr., Rm. 1-23, Rockville, MD 20857. The written request should include the PMA number or docket number. Within 30 days from the date that this information is placed on the Internet, any interested person may seek review of this decision by requesting an opportunity for administrative review, either through a hearing or review by an independent advisory committee, under section 515(g) of the Federal Food, Drug, and Cosmetic Act (the act).

Effective July 7, 1997, CDRH reclassified contact lens care products from class III (premarket approval) to class II (special controls). Although the referenced device is subject to the reclassification order, CDRH continued to process this application as a PMA to facilitate approval since the only outstanding issue at the time of reclassification was compliance with the Good Manufacturing Practice Regulation. This issue was subsequently resolved on April 28, 1998.

Future modifications of the device are subject to the premarket notification (510(k)) provisions of the act. Guidance for preparing a 510(k) submission is found in the "Guidance for Industry, Premarket Notification (510(k)) Guidance Document for Contact Lens Care Products" dated May 1, 1997, which can be found on the FDA CDRH Internet HomePage located at http://www.fda.gov/cdrh. You may obtain a hard copy of the guidance by faxing your request to the Division of Small Manufacturers Assistance [fax (301) 443-8818].

All correspondence regarding 510(k) submission should be submitted to the address below:

510(k) Document Mail Center (HFZ-401)
Center for Devices and Radiological Health
Food and Drug Administration
9200 Corporate Blvd.
Rockville, Maryland 20850

If you have any questions concerning this approval order, please contact Ms. Muriel Gelles or James F. Saviola, O.D., at (301) 594-1744, or Kathy Poneleit at (301) 594-2186.

Sincerely yours,

Susan Alpert, Ph.D., M.D.
Director
Office of Device Evaluation
Center for Devices and
Radiological Health

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Summary of Safety and Effectiveness Data

I. General Information

A. Device Generic Name: cleaning, storage, and chemical disinfection solution for use with fluoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses

B. Device Trade Name: Lobob C/D/S Cleaning, Disinfecting and Storage Solution

C. Applicant's Name and Address:
Mr. Daniel J. Manelli
Consultant
Lobob Laboratories, Inc.
1440 Atteberry Lane
San Jose, CA 95131

D. Premarket Approval Application (PMA) Number: P940026

E. Date of Notice of Approval to Applicant: APR 28 1999

II. Indications

Lobob C/D/S Cleaning, Disinfecting and Storage Solution is indicated for use in the cleaning, chemical disinfection and storage of fluoro-silicone acrylate and silicone acrylate rigid gas permeable contact lenses.

III. Device Description

Lobob C/D/S Cleaning, Disinfecting and Storage Solution is a sterile solution containing the lauryl sulfate salt of imidazoline and octylphenoxypolyethoxyethanol and is preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%.

IV. Center for Devices and Radiological Health (CDRH) Decision

The application includes by reference the data in P870023 and for the de-STAT 3^{R} Cleaning, Disinfecting and Storage Solution and all related supplements that led to the approval of the de STAT 3^{R} Cleaning, Disinfecting and Storage Solution, submitted by Sherman Laboratories, Inc. and approved by FDA on March 31, 1989. Sherman Laboratories, Inc. has authorized Lobob Laboratories, Inc. to incorporate by reference the information contained in its approved PMA to manufacture the device.

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CDRH approval of Lobob Laboratories, Inc.'s PMA is based on (1) the safety and effectiveness data contained in PMA P870023 and related supplements and (2) the results of the FDA inspections of the manufacturing facilities. A summary of safety and effectiveness data for the de-STAT 3^{R} Cleaning, Disinfecting and Storage Solution appears in Attachment A.

Effective July 7, 1997, CDRH reclassified contact lens care products from class III (premarket approval) to class II (special controls). Although the device is subject to the reclassification order, CDRH continued to process this application as a PMA to facilitate approval since the only outstanding issue at the time of reclassification was compliance with the Good Manufacturing Practice Regulation. This issue was subsequently resolved on APR 2 8 1998.

In accordance with the provisions of section 515(c)(2) of the act as amended by the Safe Medical Devices Act of 1990, this PMA was not referred to the Ophthalmic Devices Panel for review and recommendation because the information in the PMA substantially duplicates information previously reviewed by this panel. CDRH approved this application and final labeling on APR 2 8 1998.

The device shelf-life has been established and approved as 18 months.

V. Potential Adverse Effects of the Device on Health

Potential adverse effects on health resulting from the use of this device are listed in the package insert under "ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO)"

VI. Conditions of Approval

CDRH has determined that no special restrictions or conditions pertain other than those described in the "Conditions of Approval" enclosed with the approval order. A copy of the approved draft labeling is attached

Attachments A

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Summary of Safety and Effectiveness Data

I. General Information

A. Device Generic Name: cleaning, storage and chemical disinfection solution for use with silicone acrylate rigid gas permeable contact lenses

B. Device Trade Name: de-STAT 3®

C. Applicant's Name and Address: Sherman Laboratories, Inc.
P.O. Box 368
Abita Springs, Louisiana 70420

D. Premarket Approval Application (PMA) Number: P870023

E. Date of Panel Recommendation: June 21, 1988

F. Date of Notice of Approval to Applicant: MAR 31 1989

II. Indications

de-STAT 3® is indicated for use in the cleaning, chemical disinfection and storage of silicone acrylate rigid gas permeable contact lenses.

III. Device Description

de-STAT 3® is a sterile solution containing the lauryl sulfate salt of imidazoline and octylphenoxypolyethoxyethanol and is preserved with benzyl alcohol 0.1% and trisodium edetate (EDTA) 0.5%.

IV. Alternative Practices or Procedures

Alternative practices or procedures available to the patient are the use of other commercially available solutions for the same indications.

V. Summary of Studies

A. Preclinical:

1. Toxicology: The applicant conducted the battery of tests outlined in "Toxicology Guidelines" section of the Class III Contact Lens Product Guideline, an FDA guideline dated May 1983. In addition to the guideline testing, the applicant provided the following toxicology information for the preservative, benzyl alcohol:

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a. guinea pig maximization test was conducted to assess the sensitization potential of benzyl alcohol

b. Cochett-Bonett Test was conducted on humans to determine the possible anaesthetic effect of benzyl alcohol to the cornea

c. corneal penetration test was conducted in rabbits to determine the adsorption and distribution in ocular tissue and to determine if benzyl alcohol is metabolized during corneal penetration

d. corneal epithelial wound healing study was conducted in rabbits to determine if benzyl alcohol had any effect on the rate of epithelial wound healing

e. Product Safety Information Sheet containing the following information:

   1. the acute oral LD50 is 1230 mg/kg to 3100 mg/kg in rats

   2. the acute oral LD50 is 1580 mg/kg in mice

   3. the acute oral LD50 is 1040 mg/kg in rabbits

   4. the acute dermal LD50 is 2000 mg/kg in rabbits

   5. the acute inhalation LC50 is 1000 ppm in rats after an 8-hour inhalation exposure

   6. benzyl alcohol meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1900.1200)

Conclusion:

The results from the guideline testing for the device along with the additional testing described above provide reasonable assurance that the solution and its preservative, benzyl alcohol, at the concentration proposed for use (0.1%), raise no acute toxicological concerns and support the safety of the device for its intended use as stated in the approved labeling. The labeling for the device contraindicates use of the device by persons allergic to any ingredients in the solution. In addition, the labeling of the device warns that the solution is not to be used directly in the eye.

2. Microbiology: The applicant conducted the battery of tests outlined in "Microbiology Guidelines" section of the Class III Contact Lens Product Guideline, an FDA guideline dated May 1983.

Conclusion:

The results from these tests provide reasonable assurance that the solution is effective in the disinfecting of silicone acrylate rigid gas permeable contact lenses; the preservative system which includes benzyl alcohol in the proposed concentration of 0.1% is an effective preservative system for this device; and the solution remains sterile as packaged for at least 36 months.

3. Lens/Solution Compatibility: The applicant conducted tests to establish that the solution does not adversely affect lens color, base curve, diameter, center thickness, and power. In these tests, 5 Polycon, 5 Polycon II, 1 Boston IV, 4 Paraperm O_2 Plus, and 5 Optacryl K lenses were cycled through 30 cleaning and disinfection cycles. The lenses were then examined to determine the effect of the test solution on the lenses. There were no changes in lens color and parameters.

Conclusion:

The results from these tests provide reasonable assurance that the solution is compatible with clear and tinted silicone acrylate rigid gas permeable contact lenses.

4. Solution Stability: The applicant conducted tests to establish the stability of the solution and the appropriate expiration dating. The test solution was packaged into the finished product containers stored at various temperatures, and examined for conformance to original specifications.

Conclusion:

The results from these tests provide reasonable assurance that the solution remains stable as packaged for at least 36 months in its 4 fl. oz. (118 mL) container.

5. Preservative Uptake/Release: A preservative uptake/release study was conducted by the applicant for benzyl alcohol. Two lenses each of Polycon, Polycon II, Boston II, Paraperm O_2 Plus, and Optacryl K silicone acrylate rigid gas permeable contact lenses were soaked in the solution, and the uptake and release of benzyl alcohol was measured in accordance with the FDA Guidelines dated May 1983.

Conclusion:

The results from these tests demonstrate minimal risk to patients from uptake and release of the preservative by silicone acrylate rigid gas permeable contact lenses and supports the safety of the device for its intended use when accompanied by

appropriate labeling. The labeling for the device contraindicates use of the device by persons allergic to any ingredients in the solution. In addition, the labeling for the device warns that the solution is not to be used directly in the eye.

6. Cleaning Effectiveness: The applicant conducted an in vitro cleaning effectiveness test using silicone acrylate rigid gas permeable (RGP) contact lenses, as outlined in the July 1985 Class III Contact Lens Product Guidelines. In this test 5 Polycon lenses, 7 Polycon II lenses, 1 Boston IV lens, 2 Boston II lenses, 6 Paraperm O_2 Plus lenses and 5 Optacryl K lenses underwent 30 cycles of cleaning, disinfection and storage using the subject device. This test was to assess the ability of the device to clean RGP contact lenses. The lens diameter, power and clarity were monitored before and after 30 cycles of disinfection which included use of the study solution.

   Additionally, the applicant conducted the in vitro cleaning effectiveness test as outlined in the July 1985 Class III Contact Lens Product Guidelines using the study solution in a test group and a commercially available sterile unpreserved saline solution in the control group. In this test 5 lenses each of Paraperm O_2 Plus, Polycon II, and Optacryl K were tested in each of the 2 groups. The lenses were monitored for deposits, surface condition and wetting properties at the beginning and end of the study. Lenses were soaked in artificial tears for 15 minutes at room temperature. The lenses were then placed under a heat lamp for 30 minutes at 45^0 C to 50^0 C to dry. The lenses in the test group were cleaned with the study solution, and lenses in the control group were cleaned with sterile unpreserved saline solution.

   Of the 15 lenses in the test group, 10 lenses had no deposits and 5 lenses had slight deposits. In the control group 2 lenses had slight deposits, 6 lenses had moderate deposits and 7 lenses had heavy deposits. For the same lenses in the test group, the extent of deposits on the surface area of the lenses was no deposits for 9 lenses, 26% to 50% for 5 lenses and 51% to 75% for 1 lens. In the control group the extent of depsoits on the surface of the lens was 26% to 50 % for 1 lens, 51% to 75% for 11 lenses and 76% to 100% for 3 lenses.

   Conclusion:

   The results from these tests show the study solution to be more effective than saline solution in removing deposits and provide supporting evidence regarding the effectiveness of the solution to clean silicone acrylate rigid gas permeable contact lenses.

7. Additional Information: The applicant offered additional information to provide support of the effectiveness of the preservative, benzyl alcohol. This information includes references to USP XXI (page 1195) which lists benzyl alcohol as one of the commonly used antimicrobial agents and to United States Dispensatory, 26th Edition, (page 198) which lists benzyl alcohol as having bacteriostatic effects.

   Conclusion:

   The information cited above provides additional supportative evidence of the effectiveness of benzyl alcohol as an antimicrobial agent.

B. Clinical:

The purpose of the clinical study was to evaluate the safety and effectiveness of the device in accordance with the proposed labeling.

The clinical study was conducted in accordance with the "Clinical Guidelines" section of the Class III Contact lens Product Guidelines, an FDA guideline dated May 1983.

Patient Selection Criteria

The patients enrolled into this clinical study were to meet the following criteria:

1. be willing to adhere to the regimen of hygiene prescribed;

2. have normal eyes as defined in the protocol and use no ocular medications; and

3. have need of an optical correction.

Study Population

A total of 228 patients (451 eyes) was enrolled by 9 investigators into this clinical study. There were 148 females and 80 males ranging in age from 7 years to 73 years. Of the 228 patients (451 eyes) enrolled into the study, 213 patients (423 eyes) completed the 6-month study, and 15 patients (28 eyes) were discontinued from the study as discussed on page 9 of this summary. All patients in the study used de-STAT 3® and STAY-WET 3® (a lubricating and wetting solution which is the subject of another PMA). Lenses worn during the study were:

Lenses	No. of Eyes
Optacryl and Optacryl K	126
Boston II	124
Paraperm	57
Polycon and Polycon II	50
Silcon	44
Optacryl 60	32
Ultraflex	4
Flex	4
Airlens	2
B.P. Flex	2
Bioflex	2
GP II Hydrocurve	2
Ellipseecon	2

Study Period

The clinical study began on March 8, 1984, and ended on April 16, 1985. The study period was 6 months.

Findings

1. Safety:

Adverse Reactions

In evaluating this device, an adverse reaction was considered to be a serious, vision-threatening problem that was unanticipated, but which might have been attributed to the use of the study device. There were no adverse reactions reported during the course of this clinical study.

Slit Lamp Findings

A positive slit lamp finding is considered to be a routinely occurring complication that would be expected with or without the presence of contact lenses and with or without the use of the study device. The degree of severity can range from very slight to serious. At the least severe, the findings present no medical concerns and are noticeable only by microscopic slit lamp examination. In a severe state, the findings require medical treatment.

Slit lamp examinations were performed initially and periodically throughout the study. The applicant used the classification of slit lamp findings as outlined in attachment A. Positive slit lamp findings for the 423 eyes completing the study were as follows:

Slit Lamp Finding	Initial Visit 423 eyes	Follow-up Visits 2,526 eyes	Final Visit 423 eyes
Edema			
Grade 1	0	1	0
Injection			
Grade 1	0	7	0
Staining			
Grade 1	2	49	9
Grade 2	0	4	0
Grade 3	2	2	0
Grade 4	0	5	0
Grade 5	0	1	1
Grade 8	0	1	1
Iritis	0	0	0
Vascular-ization			
Grade 1	0	4	0
Other	0	0	0

One patient had recurrent grade 3 staining in both eyes at the initial and 2-week visits. The condition resolved as the study progressed.

There were 5 reports of grade 4 staining (diffuse superficial punctate staining), 2 reports of grade 5 staining (epithelial dimpling associated with gas bubbles under the lens), and 2 reports of grade 8 staining (foreign body track staining) during the study. In each case the findings resolved with no sequelae, and all patients successfully completed the study.

Conclusion:

There were no positive slit lamp findings requiring medical treatment during this study. The positive slit lamp findings in this clinical study are within expected limits for contact lens wear and do not raise any significant concerns regarding the safety of the device when used as directed in the approved labeling.

Patient Symptoms, Problems and Complaints

Patient symptoms, problems and complaints were reported by the investigators during the clinical study. Of the 3,872 eye examinations conducted, a total of 2,971 eye examination reports were provided for patient symptoms, problems and complaints during the course of the 6-month study. Patient symptoms, problems and complaints (multiple reports) were reported as follows:

	No. Reports All Visits
Awareness of lens	13
Excessive blink rate	8
Variable vision	8
Lenses need cleaning	8
Pain, burning, itching	5
Excessive movement	5
Spectacle blur	4
Handling problems	4
Reading problems	4
Flare	3
Excessive tearing	3
Distance vision blurred	2
Eyes clouded up	2
Dry eyes	2
Scratching	2
Tired eyes	2
Eyes feel swollen	2
Discomfort	1
Excessive blink rate and movement	1

Conclusion:

The patient symptoms, problems and complaints reported during this study were within expected limits for contact lens wear and do not raise any significant concerns about the safety or effectiveness of the device.

2. Effectiveness:

Visual Acuity

For the 423 eyes completing the study, visual acuity with lenses was reported as 20/30 or better for 407 of 415 eyes at the initial visit and 419 of the 421 eyes at the final visit. Visual acuity was not reported for 8 eyes at the initial visit and 2 eyes at the final visit. Visual acuity data was provided for the initial visit and was compared to visual acuity at the last visit. Results for the completer eyes were:

Visual Acuity	Initial Visit (423 eyes)	Final Visit (423 eyes)
20/20 or better	372	405
20/25	26	14
20/30	9	0
20/40	6	0
20/50	0	0
20/60	1	1
20/150	0	1
20/200	1	0
Not reported	8	2

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Conclusion:

There were no decreases in visual acuity greater than 1 Snellen line. A fluctuation in visual acuity of 1 Snellen line is not unusual for a contact lens and contact lens solution study due to measuring techniques and normal fluctuation and is not significant in terms of visual acuity. The visual acuity results in this clinical study do not raise any significant concerns regarding the safety and effectiveness of the device and provide reasonable assurance that the device does not adversely affect the lenses.

Lens Wearing Time

The average daily lens wearing time ranged from 14 hours at the 2-week visit to 15.3 hours at the final visit.

Conclusion:

The lens wearing times reported for this study provide reasonable assurance that most patients were wearing their lenses for at least 14 hours each day without negative effects from the use of the device.

Discontinued Patients

There were 15 patients (28 eyes) discontinued from this study. Reasons for discontinuation were:

Reason	No. Eyes
Lost-to-follow-up	20
Moved	4
Discomfort	2
Failure to comply with instructions	2

There were no eyes discontinued for reason of pathology. All eyes discontinued from the study were discontinued by the 8-week visit.

Conclusion:

The reasons for and incidence of discontinuance in this clinical study are within expected limits for contact lens wear and do not raise any significant concerns regarding the safety and effectiveness of the device.

Lens Replacements

There were 34 lenses replaced during this clinical study. Reasons reported for replacements were as follows:

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Reason	No. of Lenses
Acuity	11
Back-up lenses	10
Lost	4
Spectacle blur	2
Physiology and fitting	2
Not specified	2
Comfort	1
Fitting	1
Warpage	1

"Physiology and fitting" was reported as grade 1 edema and lens parameter change.

Conclusion:

The reasons for lens replacements in this study are within expected limits for contact lens wear. These reasons and numbers of replacements do not raise any significant concerns about the safety and effectiveness of the device.

Cleaning Effectiveness

To further assess the effectiveness of the solution in a clinical situation, the applicant conducted an additional clinical study using the study solution as supportive evidence of cleaning effectiveness. This study consisted of 142 eyes wearing silicone acrylate rigid gas permeable contact lenses. At the final visit (3-month visit) these 142 lenses were evaluated for surface characteristics by the investigators using the Modified Rudko Classification (Attachment B). The following results were provided:

Type	Visibility	Lens Appearance
I	101	8 - Abrasions
II	41	33 - Film
IV	0	0 - Spots

There were 101 lenses with no deposits and 41 lenses with slight deposits on the surface. Of the 41 lenses with slight deposits, there were 29 lenses having deposits involving less than 10% of the lens surface, 4 lenses involving 15% of the lens surface, 6 lenses involving 20% of the lens surface, and 2 lenses involving 25% of the lens surface area.

Discoloration was reported for 6 lenses as very slight, and the causes or reasons were not reported by the investigators.

Conclusion:

The Center for Devices and Radiological Health (CDRH) has determined that some surface deposits could be expected to remain on the lenses despite use of the device. The clinical data presented provides reasonable assurance that the device is effective in the routine cleaning of surface deposits from silicone acrylate rigid gas permeable contact lenses and is further supported by non-clinical in-vitro studies as reported earlier in this summary. Enzymatic cleaners were not used in this clinical study. However, the labeling for the device states that use of an enzyme cleaner may be needed in conjunction with the device as recommended by the eye care practitioner.

VI. Potential Adverse Effects of the Device on Health

Potential adverse effects on health resulting from the use of this device are indicated in the package insert under "ADVERSE REACTIONS" (Attachment C).

VII. Conclusions Drawn From the Studies

The data contained in the PMA provide reasonable assurance that the device is safe and effective for its intended use.

VIII. Panel Recommendation

On June 21, 1988, the Ophthalmic Devices Panel unanimously recommended approval of the PMA subject to the conditions that the applicant provide data and results from in-vitro cleaning effectiveness studies using the subject device and a control solution such as saline; that all administrative requirements be met; and that the applicant be in compliance with the device Good Manufacturing Practice (GMP) regulations.

IX. CDRH Decision

After the applicant met the conditions recommended by the Panel, CDRH concluded that the data contained in the PMA provides reasonable assurance that the device is safe and effective for cleaning, disinfecting and storing silicone acrylate rigid gas permeable contact lenses. Based upon this conclusion, upon information in the PMA and upon review of the labeling, CDRH concurred with the Panel recommendation and approved the application and draft final labeling on MAR 31 1989 .

The device shelf-life has been established and approved as 36 months. In an on-site inspection commencing on October 24, 1988, the manufacturing facilities were found to be in compliance with the device GMP regulations.

X. Conditions of Approval

CDRH has determined that the only conditions pertaining to this device are those described in the "Conditions of Approval" enclosed with the approval order. A copy of the package insert is included (Attachment C). All approved labeling is available to interested persons for inspection at:

Food and Drug Administration
Center for Devices and
Radiological Health
PMA Document Mail Center (HFZ-401)
8757 Georgia Avenue
Silver Spring, Maryland 20910

Attachments A, B and C

ATTACHMENT H

The following classifications are to be used in reporting slit lamp examination findings:

EDEMA	GRADE CLASSIFICATION
A None	0
B Micro edema — intercellular accumulation of fluid which is limited to the epithelium and is seen only by the use of the slit lamp.	
1 Slight amounts in the epithelium, seen only by retro-illumination	
(a) Localized — over less than 50% of the cornea.	1
(b) Generalized — over more than 50% of the cornea.	2
2 Moderate amounts in the epithelium, seen by direct illumination:	
(a) Localized — over less than 50% of the cornea.	3
(b) Generalized — over more than 50% of the cornea.	4
C Gross edema — intracellular cystic accumulation of fluid, viewed by the naked eye using oblique flashlight illumination.	
1 Slight case, without any stromal involvement	
(a) Circumscribed — over less than 50% of the cornea.	5
(b) Generalized — over more than 50% of the cornea.	6
2 Severe case, with stromal involvement.	
(a) Circumscribed — over less than 50% of the cornea.	7
(b) Generalized — over more than 50% of the cornea.	8

VASCULARIZATION	
A None	0
B Extension of the limbal vessels more than 1.5 mm. inside limbus.	
1 Lower limbal area only	1
2 Upper limbal area only	2
3 Over the entire periphery.	3
4 Severe (to within 1 mm. of corneal apex) extensions of the limbal vessels into the clear epithelial tissue of the cornea	4
5 Other (explain)	5

IRITIS	
A No flare or cells	0
B Minimal flare (1+)	1
C Mild (2+)	2
D Moderate (3+)	3
E Severe (cells & flare: (4+)	4

STAINING	GRADE CLASSIFICATION
A. None	0
B. Minimal, variable, peripheral stippling.	1
C. Superficial punctate staining, restricted to a peripheral location and consistent in location from examination to examination.	2
D. Superficial punctate staining, centrally located.	3
E. Diffuse superficial punctate staining.	4
F. Epithelial dimpling associated with gas bubbles under the contact lens.	5
G. Branching furrows on the epithelial surface (observed best by use of the cobalt filter and fluoroscein).	6
H. Abrasions of the epithelium. Note if apparently caused by insertion or removal.	7
I. Foreign body track staining.	8
J. Deep corneal abrasions, ulcerations, permanent scars or other severe complications (explain).	9

INJECTION	
A. None	0
B. Mild congestion and dilation of the limbal vessels which was not characteristic of the pre-fitting condition (within 1.0 mm. of limbus).	1
C. Severe congestion and dilation of the normal limbal vessels.	2
D. Conjunctival hyperemia due to excess lacrimation and epiphora.	3

OTHER COMPLICATIONS	
A. None	0
B. Adnexal changes or changes in the lacrimal or appendages of the eye.	
1. Increase in mucous secretion in the tear fluid.	1
2. Follicular hypertrophy of the lymphoid follicles of the tarsal conjunctiva.	2
3. Traumatic iritis.	3
4. Descemet's membrane wrinkling.	4
5. Permanent damage caused by opacity or scarring of the cornea (may or may not impair vision).	5
C. Other (explain).	6

APPENDIX B

LENS CLEANLINESS GRADING SYSTEM

Extent of Surface Deposits (Percent of lens surface covered by deposits)	Classification Grade
None	0
To-25%	1
26-50%	2
51-75%	3
76-100%	4
Thickness of Surface Deposits	
None	I
Slight (very fine scattered, slight deposits with no apparent depth)	II
Moderate (deposits with a slight depth build-up or thickness, but still transparent)	III
Heavy (Opaque, crusted or heavily deposited formation of obvious thickness)	IV
Type of deposits	
C	Crystalline
G	Granular
F	Filmy

PACKAGE INSERT

Please read carefully and keep this package insert for future use in case you have a problem.

SHERMAN LABORATORIES, INC.

de-STAT 3® is a cleaning, disinfecting and storage solution for use with silicone acrylate rigid gas permeable (RGP) contact lenses.
NOTE: de-STAT 3® does not contain CHLORHEXIDINE or THIMEROSAL

DESCRIPTION:

de-STAT 3® is a sterile solution containing the lauryl sulfate salt of imidazoline, octylphenoxypolyethoxyethanol, and preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%

ACTIONS:

de-STAT 3® is a combination cleaning, storage and disinfection solution. de-STAT 3® loosens and removed accumulations of film, debris and surface deposits from the lenses; and destroys harmful microorganisms on the surface of silicone acrylate RGP lenses.

INDICATIONS:

de-STAT 3® is indicated for use in the cleaning, chemical disinfection and storage of silicone acrylate RGP contact lenses.

CONTRAINDICATIONS:

Please note carefully the ingredients as listed. If you are allergic to any ingredient in de-STAT 3®, do not use this product.

WARNINGS:

* To avoid contamination, do not touch dropper tip to any surface.
* Close cap tightly after each use.
* de-STAT 3® is NOT for use directly in the eye.
* de-STAT 3® must be completely rinsed from the lenses after disinfection and prior to wetting and insertion.
* Lens care procedures as recommended by your eye care practitioner muyst be followed. Faliure to follow these procedures may result in serious eye infections. If any unexplained eye discomfort, watering, vision change or redness of the eye occurs, immediately consult your eye care practitioner to identify the cause and begin necessary treatment.

PRECAUTIONS:

* Always wash and rinse hands before handling your lenses.
* Always use fresh de-STAT 3® in your lens case. NOTE: After inserting your lenses, always empty your lens storage case, rinse, and allow to air dry.
* Never reuse the solution in your lens storage case.
* Store at room temperature 15 - 30° C (59 - 86° F).
* Keep out of reach of children.
* Use before expiration date stamped on carton and bottle label.
* Never heat de-STAT 3® solution or your RGP lenses.
* de-STAT 3® is not for use with soft (hydrophilic) contact lenses.

7

ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO):

The following problems may occur while wearing conatct lenses:

* Redness of the eye
* Eyes stinging, burning, or itching
* Excessive watering (tearing) of the eyes
* Unusual eye secretions
* Reduced sharpness of vision (visual acuity)
* Blurred vision
* Sensitivity to light (photophobia)
* Dry eyes

If you notice any of the above problems, IMMEDIATELY remove and examine your lenses. If the problem stops, and the lens appreas to be undamaged, throughly clean, rinse and disinfect the lenses and reinsert them. If the problem continues, or a lens appears to be damaged, IMMEDIATELY remove your lenses and consult your eye care practitioner. DO NOT reinsert a damaged lens.

If any of the above problems occur, a serious condition such as infection, corneal ulcer, neovascularization, or iritis may be present. Seek immediate professional identification and treatment of the problem to avoid serious eye damage. See your Instructions for Wearers Booklet for more information.

DIRECTIONS FOR USE:

General

* Always wash and rinse your hands before handling your contact lenses.
* Clean and rinse one lens, the right or left, first (always the same lens first to avoid mix-ups).

Clean

Upon removing the right lens from the eye, place the lens in the palm of the hand and cover the lens completely with 10 drops of de-STAT 3®. Rub the lens for 30 seconds with the index finger of the other hand creating a thick sudsy pool of solution.

NOTE: An enzyme cleaner may also be used if recommended by your eye care practitioner.

Rinse

Hold the lens under fresh running tap water. Be sure the drain of the sink is closed.

Disinfect/Store

Place the lens in the right chamber of your lens storage case and completely cover the lens with fresh de-STAT 3®.

Close the lid tightly and store the lens in the unopened storage case for at least six (6) hours.

Repeat the above procedure for the left lens.

HOW SUPPLIED:

de-STAT 3® is supplied sterile in 4 fl. oz. (118 mL) and 1 fl. oz. (30 mL) plastic bottles. Bottles and cartons are marked with lot numbers and expiration date.

EACH CONTAINER IS TAMPER-EVIDENT SEALED. IF THE SEAL AROUND THE BOTTLE CAP IS MISSING OR BROKEN, DO NOT USE THIS PRODUCT.

SHERMAN LABORATORIES, INC.
ABITA SPRINGS, LA 70420

Printed (Mo/Yr)

THE FOLLOWING IS A MOCK UP INSERT FOR THE LOBOB EQUIVALENT OF de-STAT 3, LOBOB C/D/S SOLUTION, THE TEXT IS IDENTICAL TO SHERMAN PHARMACEUTICALS, INC. EXCEPT FOR LOBOB TRADE NAME.

Please read carefully and keep this package insert for future use in case you have a problem.

LOBOB LABORATORIES, INC.

LOBOB C/D/S Solution is a cleaning, disinfecting and storage solution for use with fluoro/silicone acrylate and silicone acrylate rigid gas permeable (RGP) contact lenses. NOTE: LOBOB C/D/S Solution does not contain CHLORHEXIDINE or THIMEROSAL.

DESCRIPTION: LOBOB C/D/S Solution is a sterile solution containing the lauryl sulfate salt of imidazoline, octylphenoxypolyethoxyethanol, and preserved with benzyl alcohol 0.1% and trisodium edetate 0.5%.

ACTIONS: LOBOB C/D/S Solution is a combination cleaning, storage and disinfection solution. LOBOB C/D/S Solution loosens and removes accumulations of film, debris and surface deposits from the lenses; and destroys harmful microorganisms on the surface of fluoro/silicone acrylate and silicone acrylate RGP contact lenses.

INDICATIONS: LOBOB C/D/S Solution is indicated for use in the cleaning, chemical disinfection and storage of fluoro/silicone acrylate and silicone acrylate RGP contact lenses.

CONTRAINDICATIONS: Please note carefully the ingredients as listed. If you are allergic to any ingredient in LOBOB C/D/S Solution, do not use this product.

WARNINGS:

- .To avoid contamination, do not touch dropper tip to any surface.
- .Close cap tightly after each use.
- .LOBOB C/D/S Solution is NOT for use directly in the eye.
- .LOBOB C/D/S Solution must be completely rinsed from the lenses after disinfection and prior to wetting and insertion.
- .Lens care procedures as recommended by your eye care practitioner must be followed. Failure to follow these procedures may result in serious eye infections. If any unexplained eye discomfort, watering, vision change or redness of the eye occurs, immediately remove your lenses and consult your eye care practitioner to identify the cause and begin necessary treatment.

PRECAUTIONS:

- .Always wash and rinse your hands before handling your lenses.
- .Always use fresh LOBOB C/D/S Solution in your lens case. NOTE: After inserting your lenses always empty your lens storage case, rinse and allow to air dry.
- .Never reuse the solution in your lens storage case.

.Store at room temperature 15-30°C (59-86°F).
.Keep out of reach of children.
.Use before expiration date stamped on carton and bottle label.
.Never heat LOBOB C/D/S Solution or your RGP lenses.
.LOBOB C/D/S Solution is not for use with soft (hydrophilic) contact lenses.

ADVERSE REACTIONS (PROBLEMS AND WHAT TO DO): The following problems may occur while wearing contact lenses.

.Redness of the eye
.Eyes stinging, burning or itching
.Excessive watering (tearing) of the eyes
.Unusual eye secretions
.Reduced sharpness of vision (visual acuity)
.Blurred vision
.Sensitivity to light (photophobia)
.Dry eyes

If you notice any of the above problems, IMMEDIATELY remove and examine your lenses. If the problem stops, and the lenses appear to be undamaged, thoroughly clean, rinse and disinfect the lenses and reinsert them. If the problem continues, or a lens appears to be damaged, IMMEDIATELY remove you lenses and consult your eye care practitioner. DO NOT reinsert a damaged lens. If any of the above problems occur, a serious condition such as infection, corneal ulcer, neovascularization, or iritis may be present. Seek immediate professional identification and treatment of the problem to avoid serious eye damage. See your Instructions for Wearers Booklet for more information.

DIRECTIONS FOR USE:

General

.Always wash and rinse your hands before handling your contact lenses.
.Clean and rinse one lens, the right or left, first (always the same lens first to avoid mix-ups).

Clean

Upon removing the right lens from the eye, place the lens in the palm of the hand and cover the lens completely with 10 drops of LOBOB C/D/S Solution. Rub the lens for 30 seconds with the index finger of the other hand creating a thick sudsy pool of solution.

NOTE: An enzyme cleaner may also be used if recommended by your eye care practitioner.

Rinse

Hold the lens under fresh running tap water. Be sure the drain of the sink is closed.

Disinfect/Store

Place the lens in the right chamber of your lens storage case and completely cover the lens with fresh LOBOB C/D/S Solution. Close the lid tightly and store the lens in the unopened storage case for at least six (6) hours. Repeat the above procedure for the left lens.

HOW SUPPLIED:

LOBOB C/D/S Solution is supplied sterile in 4 fl. oz (118 mL) and 1 fl. oz. (30 mL) plastic bottles. Bottles and cartons are marked with lot numbers and expiration date.

EACH CONTAINER IS TAMPER-EVIDENT SEALED. IF THE SEAL AROUND THE BOTTLE CAP IS MISSING OR BROKEN, DO NOT USE THIS PRODUCT.

~~Distributed~~ manufactured by:

LOBOB LABORATORIES, INC. SAN JOSE, CALIFORNIA 95131

print date